ABSTRACT OF THE DISCLOSURE

The semiconductor device is provided with an insulator layer having a via-stud on a semiconductor substrate, the via-stud being formed in a via-hole through a barrier layer formed of an inorganic compound layer or a high melting point metal layer formed on an inner surface of the via-hole, the via-stud being made of the same metal as a metal composing the barrier layer. The semiconductor device can be obtained by forming the barrier layer on the inner surface of the via-hole in the semiconductor substrate, then treating the substrate with a treatment solution containing a complex forming agent, immersing the treated substrate into an electroless plating solution, bringing a member made of the same metal as a metal formed by the electroless plating in contact with the electroless plating solution, and electrically connecting the member to the barrier layer to perform electroless plating.